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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RAO, MANJUNATH N	
ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/807,933	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Manjunath N. Rao, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56 and 58-86* is/are pending in the application.

4a) Of the above claim(s) *1-36,41-56,58 and 59* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-40 and 60-86* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4-20-01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-56, 58-86 are currently pending in this application. Claims 37-40 and 60-86 are now under consideration. Claims 1-36, 41-56, 58-59 remain withdrawn from consideration as being drawn to non-elected invention.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 40, 60 and 86 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 40, 86 are drawn to a protein comprising said amino acid sequences and claim 60 is drawn to polynucleotide sequences encoding said polypeptide sequences both of which reads on product of nature. Amending the claims to recite "An isolated..." to show the hand of man would overcome the above rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 71 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 71 recites the limitation "host cell according to claim 63" in line 3. There is insufficient antecedent basis for this limitation in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 37-40, 60-85 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an endoglucanase enzyme with SEQ ID NO:1, 3, 5, 7, 9 or 11, encoded by polynucleotides with SEQ ID NO:2, 4, 6, 8, 10 or 12 or 13 does not reasonably provide enablement for any or all endoglucanases produced by fungi belonging to the group "Zygomycotina" including modified endoglucanases having a modification such as an addition, insertion, deletion or substitution of one or several amino acids or homologues of said endoglucanases, or proteins comprising SEQ ID NO:1, 3, 5, 7, 9 or 11 without any activity, polynucleotides encoding such endoglucanases (including polynucleotides which comprise a sequence in which codons have been optimized for a host by selecting frequently used codons of that host), methods of using such enzymes and compositions comprising such enzymes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required, are summarized in In re Wands (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 37-40 and 60-85 are so broad as to encompass any endoglucanase from any member of the extremely large group of fungi classified as Zygomycetes, including modified endoglucanases such variants, mutants or recombinants or homologues wherein said modification comprises addition, insertion or deletion or substitution of one or several amino acids. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of endoglucanases broadly encompassed by the claims. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires a knowledge of and guidance with regard to which amino acid/s in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the proteins' structure relates to its function. However, in this case the disclosure is limited to the endoglucanases with amino acid sequence SEQ ID NO:1, 3, 5, 9, or 11. Furthermore, while applicants have taught the polynucleotides with SEQ ID NO:2, 4, 6, 8, 10, 12, or 13, they have not taught polynucleotides encoding endoglucanases in which codons are optimized for any or all the host cells one of skilled in the art can use. It would require undue experimentation of the skilled artisan to make and use the claimed polypeptides and polynucleotides. The specification is limited to teaching use of SEQ ID NO: 1, 3, 5, 9, or 11 encoded by SEQ ID NO:2, 4, 6, 8, 10 12, or 13 as a endoglucanase but provides no guidance with regard to the making of variants and mutants and homologues or with regard to the proteins comprising above sequences (with no specified activity) or other uses. In view of the great breadth of the claim, amount of experimentation required to make the claimed polypeptides, the

lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary structure (e.g., see Ngo et al. in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al. (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495, Ref: U, Form-892), the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by this claim.

While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions.

The specification does not support the broad scope of the claims which encompass all modifications and fragments of any endoglucanase or endoglucanase with SEQ ID NO: 1, 3, 5, 9, or 11 and their respective polynucleotides encoding the same because the specification does not establish: (A) regions of the protein structure which may be modified without effecting endoglucanase activity; (B) the general tolerance of endoglucanases to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any endoglucanase amino acid residue with an expectation of obtaining the desired biological function; (D) methods to optimize codons for use in any or all types of host cells; and (E) the specification provides

insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including endoglucanases with an enormous number of amino acid modifications of the endoglucanase of SEQ ID NOS:1, 3, 5, 9 or 11 and the polynucleotides encoding such enzymes. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of endoglucanases and their respective polynucleotides encoding the same having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

In response to the previous Office action, applicants have traversed the above rejection arguing that the specification at p. 16 lists several types of modifications and also describes how to assay enzyme activity. Applicants also argue that art set forth in the Office action indicates modification of enzyme containing a particular consensus sequence. Applicants also draw the attention of the Examiner to page 25 and some examples and argue that the specification envisions sequence variations of the disclosed SEQ ID NOs. Applicants also submit that they strongly disagree with the inclusion of claim 38 in the rejection. Examiner respectfully disagrees with such arguments as being persuasive to overcome the above rejection. Examiner acknowledges that applicants have provided examples of specific amino acids that can be changed (for example p 25-26). Examiner also acknowledges that applicants have support for

their argument regarding modification of asparagine for linking oligosaccharide chains. However, while the specification is enabled for those specific modifications of amino acid sequences with SEQ ID NO:1, 3, 5, 9 and 11, the specification is not enabled for modifications as claimed, for example claims 40 which is drawn to any type of modification of any or all amino acid residues. Regarding claim 38, while the specification provides support for said CBD domain, the claim continues to depend from claim 37 which encompasses all the endoglucanases produced by the extremely large number of members of Zygomycotina, including variants, mutants and recombinants. Reiterating from above while methods to produce variants of a known sequence such as site-specific mutagenesis, random mutagenesis, etc. are well known to the skilled artisan, producing variants as claimed by applicants (i.e., an endoglucanase from the group zygomycetes and having a modification such as an addition, insertion, deletion or substitution of one or several amino acids) requires that one of ordinary skill in the art know or be provided with guidance for the selection of all those amino acids that can be modified and the specific amino acids that can be used for modification as well as guidance to select which of the infinite number of variants have the claimed property. Without such guidance one of ordinary skill would be reduced to the necessity of producing and testing all of the virtually infinite possibilities. This would clearly constitute undue experimentation. While enablement is not precluded by the necessity for routine screening, if a large amount of screening is required, the specification must provide a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. Such guidance has not been provided in the instant specification. As previously stated the specification does not establish: (A) regions of the protein structure which may be modified without effecting endoglucanase activity; (B) the general

tolerance of endoglucanases to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any endoglucanase amino acid residue with an expectation of obtaining the desired biological function; (D) methods to optimize codons for use in any or all types of host cells; and (E) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful. Therefore the above rejection is maintained.

Claims 37-40 and 60-85 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 37-40, 60-85 are directed to endoglucanases from zygomycete fungi, modified endoglucanases, and homologues of the same and the respective polynucleotides encoding the same. Claims 37-40, 60-85 are rejected under this section of 35 USC 112 because the claims are directed to a genus of polypeptides and polynucleotides derived from fungi or derived from SEQ ID NO:1, 3, 5, 7, 9, or 11 including modified polypeptide sequences, modified by at least one of deletion, addition, insertion and substitution of an amino acid residue that have not been disclosed in the specification. No description has been provided of the modified/homologue polypeptide and polynucleotide sequences encompassed by the claim. No information, beyond the characterization of SEQ ID NO:1-12 and 13 has been provided by applicants which would indicate that they had possession of the claimed genus of modified polypeptides and polynucleotides encoding the same. The specification does not contain any disclosure of the

structure of all the derived polypeptide sequences or modified sequences, including fragments and variants and polynucleotides encoding the same within the scope of the claimed genus. The genus of polypeptides claimed and their respective polynucleotides encoding the same is a large variable genus including peptides/polynucleotides which can have a wide variety of structures. Therefore many structurally unrelated polypeptides and polynucleotides are encompassed within the scope of these claims. The specification discloses only few species of the claimed genus which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

In response to the previous Office action, applicants have traversed the above rejection arguing that the CBD domain has not been previously described and that the consensus sequence was described in three different species. Applicants also argue that the specification describes how to obtain homologous sequences and is therefore commensurate in scope. Examiner respectfully disagrees with such an argument for the following reasons. Applicants' claims are not limited to CBD but to endoglucanases and polynucleotides encoding the same. As discussed in the written description guidelines, the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying

characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. A representative number of species means that the species which are adequately described are representative of the entire genus. **Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus.** Satisfactory disclosure of a representative number depends on whether one of skill in the art would recognize that the applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the species disclosed. For inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one, two or three species within the genus. In the instant case the claimed genera of Claims 37-40, 60-85 includes species which are widely variant in structure. The genus of Claims 37-40, 60-85 is structurally diverse as it encompasses polypeptides and polynucleotides encoding polypeptides with endoglucanase activity, and polypeptides and polynucleotides with possibly other uses. As such, neither the description of the structure and function of SEQ ID NOS:1, 3, 5, 7, 9 and 11 nor the disclosure of solely functional features present in all members of the genus is sufficient to be representative of the attributes and features of the entire genus. Therefore the above rejection is maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 40, 60-85 are rejected under 35 U.S.C. 102(b) as being anticipated by Schulein et al. (WO94/07998, April, 1994) or rejected under 35 U.S.C. 102(e) as being anticipated by Schulein et al. (US 6,387,690 5-14-2002). This rejection is based upon the public availability of a printed publications or patent. Claims 40 and 60-85 of the instant application are drawn to protein with SEQ ID NO:1, 3, 5, 7, 9, 11 encoded by SEQ ID NO:2, 4, 8, 10, 12-13, vectors and host cells comprising the same or modified protein exhibiting endoglucanase activity and having a modification such as an addition, insertion, deletion or substitution of one or several amino acids, method of making said polypeptides and methods of using said polypeptides with endoglucanase in a variety of processes such as detergent, fabric color restoration, fuzz removal, deinking process, paper pulp treatment and in making animal feeds. Schulein et al. disclose an endoglucanase and its use in a variety of processes as claimed in the above claims. Since there is no limitation placed on the number of changes that can be present in the amino acid sequence with SEQ ID NO:1, 3, 5, 7, 9, or 11 and the nucleotide changes in the polynucleotide sequence,

SEQ ID NO:2, 4, 6, 8,10, 12, 13, for a variant polypeptide/ polynucleotide, claims 40 and 60-85 read on the endoglucanase and the encoding DNA sequence disclosed by Schulein et al. Thus Schulein et al. anticipate claims 40, 60-85 of this application as written.

In response to the previous Office action, applicants have traversed the above rejection arguing that the reference does not disclose an endoglucanase as claimed. Applicants have argued at length by comparing the CBD domains and also pointed out that the endoglucanase in the reference has the CBD at the C-terminus as opposed to the claimed enzyme with the CBD at the N-terminal. Acknowledging those differences between the claimed enzyme and the enzyme in the reference, Examiner has withdrawn the above rejection as applied previously to claims 37-39. However, the above rejection is maintained for claims 40 and 60-85.

Claims 37-40, 72-73 are rejected under 35 U.S.C. 102(b) as being anticipated by Yu et al. (US 4,966,850, Oct 30, 1990). This rejection is based upon the public availability of a patent. Claims 37-40, 72-73 of the instant application drawn to endoglucanases derived from filamentous fungi and belonging to family 45, having a CBD in its N-terminal region, wherein the filamentous fungi belong to genus *Rhizopus*, *Mucor* or *Phycomyces* and a composition comprising said enzyme. Yu et al. disclose an endoglucanase composition isolated from *Mucor sp.* (see column 14, and Tables 9 through 11). While the reference does not explicitly disclose that the endoglucanase belongs to family 45 or that it has an N-terminal CBD, Examiner takes the position that the enzyme disclosed in the reference and that claimed are inherently one and the same as the reference enzyme is isolated from *Mucor sp.* Therefore, Yu et al. anticipate claims 37-40, 72-73 as written.

Since the Office does not have the facilities for examining and comparing applicants' protein with the protein of the prior art, the burden is on the applicant to show a novel or unobvious difference between the claimed product and the product of the prior art (i.e., that the protein of the prior art does not possess the same material structural and functional characteristics of the claimed protein). See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald* et al., 205 USPQ 594.

In response to the previous Office action, applicants traverse the above rejection arguing that Yu et al. discloses cellulase activity which includes endoglucanase and ß-glucosidase activity and that the activity disclosed by Yu et al. is very low activity and that the activity assays conducted by Yu et al. are at neutral pH while the claimed enzyme is active at alkaline pH and therefore the reference does not anticipate said claims in question. However, Examiner respectfully disagrees with such an argument as being persuasive to overcome the above rejection. This is because, contrary to applicants' argument, instant claims are conveniently directed some times to an endoglucanase, sometimes to a protein and sometimes to a cellulase preparation (see for example claim 73). While it is not clear to the Examiner as to why applicants have resorted to this way of claiming their polypeptide, Examiner has given the broadest interpretation to the activity of the polypeptide as "cellulase". Furthermore, applicants' argument that the enzyme in the reference is active in neutral pH while the claimed enzyme is active at alkaline pH is also not persuasive because instant claims are not limited to activity at specific pH. Therefore, Examiner maintains that irrespective of the differences pointed out by the applicants, Yu et al. continue to anticipate instant claims as written.

Claims 37-40, 72-73, 86are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Somkuti (J. Gen. Microbiol., 1974, Vol. 81, pages 1-6). Claims 37-40, 72-73, 86, are drawn to an endoglucanase or a cellulase preparation wherein said enzyme belongs to family 45, is isolated from a member of *Zygomycotina*, such as *Rhizopus*, *Mucor* or *Phycomyces*, having a CBD located at its N-terminal and comprising SEQ ID NO:18, or comprising SEQ ID NO:1, 3, 5, 7, or 9 and variants of the same. Somkuti et al. disclose the isolation and purification of such enzymes from *Mucor pusillus* and *M.miehei* both, members of *Zygomycotina*. The reference discloses the isolation of several cellulolytic enzymes including a ß-glucosidase. While the reference does not explicitly disclose that any of the isolated enzyme is an endoglucanase, the reference teaches that isolated enzymes exhibited cellulolytic activity against a variety of celluloses even after the ß-glucosidase activity was separated out. Because the reference teaches the isolation of the cellulolytic enzymes from the same source as that in the claimed here, Examiner takes the position that the enzyme claimed and the enzymes disclosed in the reference are one and the same. Examiner also takes the position that since the source of the enzymes are one and the same, the enzyme disclosed in the reference inherently has all the characteristics such as the CBD on the N-terminal side, amino acid sequence etc. claimed herein. Therefore the reference of Somkuti et al. anticipates claims 37-40, 72-73, 86

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 60-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somkuti as applied to claims 37-40, 72-73, 86 above, and further in view of the common knowledge in the art regarding protein purification techniques and general molecular biology techniques with respect to cDNA cloning as taught by for example Sambrook et al. (Molecular Cloning, A Laboratory Manual, 2nd Ed, ColdSpring Harbor Laboratory Press, 1989, pages 7.37-7.52). Claims 60-71 in this instant application are drawn to polynucleotides encoding said endoglucanase, vectors and host cells comprising the same.

The reference of Somkuti as it applies to the claims directed to the endoglucanse polypeptide has already been discussed above.

Sambrook et al. teach a general methods of purifying a protein, obtaining the amino acid sequence and utilizing such sequence information to isolate the cDNA encoding said polypeptide, followed by cloning such polynucleotides in vectors and a variety of host cells such as bacterial cells and filamentous fungal cells etc. and methods of expressing said polynucleotide in order to make recombinant polypeptide.

Therefore by combining the teachings of Somkuti with the common knowledge of cloning methods available in the art, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to obtain the amino acid sequences of the different cellulase enzyme taught by Somkuti and isolate the respective cDNAs followed by cloning and expression of the polypeptide from respective recombinant host cells. One of ordinary skill in

the art would have been motivated to do so in order to make large amounts of the enzyme for industrial use. One of ordinary skill in the art would have had a reasonable expectation of success since Somkuti provides the purified enzymes isolated from member of Zygomycotina and the art teaches (Sambrook et al.) a reliable and time-tested methods of cloning that has been used by a number of other inventors.

Therefore the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art.

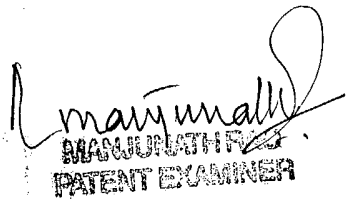
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

None of the claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manjunath N. Rao, Ph.D. whose telephone number is 571-272-0939. The examiner can normally be reached on 6.30 a.m. to 3.00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone numbers for the organization

where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.



Manjunath N. Rao
March 18, 2004